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First Named Inventor	Mathilde Benveniste
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Examiner Name	ANTONY M. SOL
Attorney Docket Number	

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ENCLOSURES   *(Check all that apply)*

- [ ] Fee Transmittal Form
  - [ ] Fee Attached
- [✔] Amendment/Reply
  - [ ] After Final
  - [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
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- [ ] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
- [ ] Reply to Missing Parts/ Incomplete Application
  - [ ] Reply to Missing Parts under 37 CFR 1.52 or 1.53

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- [ ] Petition to Convert to a Provisional Application
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- [ ] After Allowance Communication to TC
- [ ] Appeal Communication to Board of Appeals and Interferences
- [ ] Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)
- [ ] Proprietary Information
- [ ] Status Letter
- [ ] Other Enclosure(s) (please identify below):

Remarks

Enclosed please find the reply to the office action, dated 08/15/2007, on the above mentioned patent application. It consists of explanation and amendments. Enclosed is the complete listing of the claims, as amended.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	
Signature	*[signature]*
Printed name	Mathilde Benveniste
Date	11/2/07
Reg. No.	

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

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November 2, 2007

Mail Stop Amendments
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RE: Application No. 10/603,263

Dear Sir or Madam:

This is the response to the Office Action report dated 08/15/2007 concerning the above listed patent application. Enclosed please find the complete listing of the Claims, as amended. The amended claims differentiate more clearly the type of system to which this method applies from systems cited in the Office Action report.

The amended claims are supported by the description. I submit that the claims are novel and inventive over the prior art for the reasons given below.

The patent application teaches how to solve the "uplink channel capture" problem, which arises in wireless TDD systems using distributed contention-based access methods on multiple beams. To my knowledge, this problem has not been addressed in any of the prior art. The patents/patent applications cited in the action report employ different access methods, which don't give rise to this capture effect.

A couple of patents/patent applications were cited in the action report as having anticipated the method in the above listed patent application – referred to below as "the invention" – either separately or combined. I believe that none of the cited material anticipates the invention.

The access method in the invention is a distributed contention-based channel access method where the stations and the access point (AP) contend for the channel. Struhsaker patent application [Pub. No. US 2002/0136170 A1], which is cited throughout the action report, discloses neither a *distributed* nor a *contention-based* medium access method to transmit data. Data traffic is transmitted through the use of *TDMA*, [para. 125-137]. TDMA is a centralized and deterministic medium access method (not distributed or contention-based). Contention occurs solely in time slots designated for service requests by the stations. Since the AP specifies these time slots also, there is no contention between the AP and the stations for these time slots. A distributed contention-based access method does not require special service request channels/time slots.

Because of the distributed nature of access in the invention, it is possible for the stations to 'capture' a TDD channel, making it difficult for the AP to transmit. In contrast, in Struhsaker's method, the AP coordinates both the downlink transmissions and the transmissions of the stations. Because of this central control, a capture effect will not arise in Struhsaker's method.

The invention uses the channel differently and possibly more efficiently than the method in the cited patent applications. Stations and the AP transmit whenever the channel becomes idle and typically for as long as needed, according to the invention. In a TDMA access method like Struhsaker's, all data traffic is transmitted at time slots assigned by the AP. If a station does not have as much traffic

pending transmission as expected when the AP allocated time slots, the time slots assigned to the station will go unused. Another station cannot use these time slots. In Struhsaker's method, the access point cannot use the channel if no station is transmitting, either; it must wait until the next TDD frame [para. 128-134] to transmit, letting the channel sit idle in the meanwhile. If a station has more traffic pending than what can be transmitted in the allotted time, transmission of some of the data will have to be delayed unnecessarily.

The cited patent by Daane [U.S. Patent No. 6,754,196 B1] employs dummy frames on the downlink, as done in the invention. However, unlike in the invention, the dummy frames are not sent in order to prevent stations from sensing an idle channel and transmitting upstream (as done in the invention), since Daane's method employs TDMA for access (Fig. 1), not a CSMA-like protocol. Moreover, given his use of FDD to separate uplink from downlink transmissions, whether dummy frames are transmitted on the downlink or not is irrelevant with regard to the upstream transmissions; stations transmit on a different frequency than the network manager (which is equivalent to the AP in the invention) [col. 3, lines 6-13]. Hence, Daane's patent, either alone or in conjunction with Struhsaker's patent application, does not anticipate the invention.

The compound acknowledgement policy disclosed in the invention enables the receiver to acknowledge successful completion of a transmission as soon as possible, but subject to the engineering constraints imposed on medium access as a consequence of using multiple beams. For instance, the AP could not send an acknowledgement immediately following the receipt of an uplink frame while other stations are still transmitting to the access point on another beam. Instead it must wait until all uplink transmissions end and send a single acknowledgement for all the unacknowledged frames. This is a novel acknowledgement policy. It is not anticipated by the cited admitted prior art, namely the 802.11e Block Ack policy, which is intended for omni directional APs and whose purpose is to save bandwidth by postponing and aggregating acknowledgements. In 802.11e, the Block Ack is sent at the request of the source, which transmits a BlockAck Request to prompt it. The acknowledgement policy in the invention does not allow the source to postpone acknowledgement, and prompting for the acknowledgement is not required.

None of the patents cited in the examiner's report anticipate the invention, either alone or combined. More detailed responses to the action report comments for the individual claims are provided in the attached form.

Sincerely,

Mathilde Benveniste

Enclosures